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Widening the circle

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**Peer networks hold a key to contemporary professional teacher development, but schools also need to creatively consider how the wider community can participate in this conversation, write Kimberley Pressick-Kilborn and Matthew Kearney.**

When many of us started teaching, the overhead projector, loudspeaker and stencil duplicator were the most widely used technologies in schools. Our classrooms had a blackboard with chalk and a duster, and we took our students to the school library to watch a video when it was relevant. The cameras we used to take photos of our students used film. This was 20 years ago, not 50. How quickly the educational technologies available to us as teachers have changed in a relatively short space of time. There are many challenges for teachers' professional learning associated with this rapid rate of change. Here, we discuss three particular challenges: redefining the nature of teacher knowledge required to be a professional 21st century educator, keeping abreast of emerging trends and informing parents of new developments.

Teacher education programs have traditionally focused on teachers' content knowledge (discipline-specific knowledge of subject matter or what to teach) and its relationship with pedagogical knowledge (how to teach the subject matter). In 1987, Lee Shulman named the intersection of these two domains pedagogical content knowledge. His framework has been widely used in teacher preparation and has been valued as a concept that usefully blends these two domains. More recently in 2006, Punya Mishra and Matthew Koehler espoused a third emerging and significant domain - teachers' technological knowledge. They advocated a new conceptual framework in teacher education that brings together teachers' content knowledge, pedagogical knowledge and technological knowledge, focusing on the interactions between these three domains. It is known as the TPACK (Technological Pedagogical Content Knowledge) model (see graph below. Source: [http://tpack.org](http://http:/tpack.org) ).

Essentially, the TPACK framework highlights the nuanced and complex relationships between these three forms of contemporary teacher knowledge. Mishra and Kohler stress the importance of not viewing any one of these three components in isolation and warn that knowing about technology does not automatically lead to good teaching practices. The framework has influenced approaches to ICT integration in curricula and in teacher education processes, and provides a suitable reference point for discussion and analysis of teachers' ICT capabilities.

Through programs such as Teaching Teachers for the Future (TTF, [http://www.altc.edu.au/ttf/](http://http:/www.altc.edu.au/ttf/)), teacher educators are investigating the use of new technologies in their tertiary classes. Through this process, pre-service teachers are supported in broadening their technological awareness and knowledge in rich discipline-specific contexts rather than some of the more traditional inert 'IT class' contexts of past decades.

The TTF program is enhancing pre-service teachers' decision-making skills about how and when to incorporate technology in primary and secondary school contexts. As beginning teachers, new graduates who have participated in the TTF program will be able to assist in up-skilling existing staff in schools. They will be able to introduce innovative ways of integrating technology into classroom-based learning, bringing knowledge of both contemporary technologies and the possibilities for new or refined teaching approaches.

Herein lies what is potentially the most significant challenge: ensuring teachers make informed choices about using technology, mindful of the goal of promoting effective student learning. We need to look beyond novelty and 'cool tricks' to whether, when and how technologies have a pedagogical place. There are key questions we could reflect on:

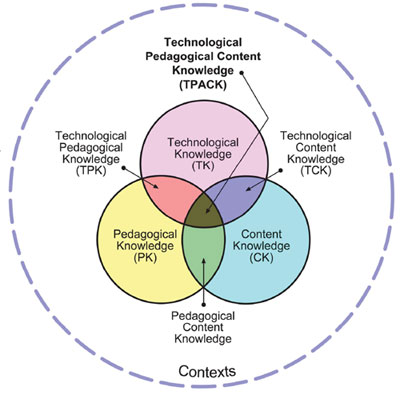
How does the use of technology support students' conceptual understanding and skill development, and their motivation and engagement in learning? How can we teach students to think critically and creatively, mediated by their use of learning technologies? How might technology enable students to communicate their knowledge and understanding in ways that wouldn't otherwise be possible? How can technology broaden students' access to and participation in communities outside of school, and provide new opportunities for building relationships with others? And, how might technology challenge what we currently think of as possible in school-based learning?

Reflecting on our technology-mediated pedagogical approaches leads to discriminate use of ICT as another tool in our kitbag as teachers. For example, at a school where one of us has been recently working with staff, a music teacher is experimenting with how he can use digital video of his students' performances to demonstrate the outcomes of learning. This dynamic, digital medium clearly suits the nature of performance, leading to enhanced reflective practices. Such creative, authentic snapshots of students' learning also have the potential for inclusion in an e-portfolio.

Teachers need to stay up-to-date with developing pedagogies and critically evaluate emerging technologies that might support teaching and learning across the curriculum. An exciting option is to participate in exciting and vibrant professional learning communities. Teachers can now connect with colleagues through dedicated local and global education networks (for example, Tapped In, [http://tappedin.org/tappedin/](http://http:/tappedin.org/tappedin/)). More informal communities are also popular with teachers networking through Web 2.0 facilities such as teacher blogs, microblogs (for example, Twitter) and media sharing sites such as Teachertube ([www.teachertube.com](http://www.teachertube.com)) and iTunesU ([www.apple.com/education](http://www.apple.com/education)). These active communities offer teachers a flexible and convenient way to exchange new ideas and share innovative resources. Many of these communities provide access to a range of peer-reviewed learning materials produced by teachers for teachers, often under creative commons licence (the LAMS community, [http://lamscommunity.org](http://http:/lamscommunity.org) and Merlot, [www.merlot.org/merlot/index.htm](http://www.merlot.org/merlot/index.htm)).

Furthermore, schools face the challenge of including parents in their professional learning community. How might schools create opportunities for parents to develop their understandings of how technology is changing the contexts in which children and young people learn? We are both involved in one Sydney school's program of Thought Leadership Forums, that bring together teachers, parents and local community members to hear more about current issues in education. This school, for example, recently worked with the Australian Communication and Media Authority (ACMA) to present a unique style of seminar. Educators from ACMA conducted workshops with students prior to the session for parents and teachers, and students' digital presentations on various aspects of cybersafety were incorporated in the final seminar for parents and teachers.

These are exciting times for the teaching profession yet many challenges lie ahead for schools as they strive to embrace 21st century teaching and learning environments. New frameworks such as TPACK should facilitate constructive dialogue in this change process and foster expanded notions of teacher knowledge and competence. Peer networks hold a key to contemporary professional teacher development, forging new connections with colleagues globally. Schools also need to creatively consider how parents and the wider community can participate in this conversation.



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